

**Work Order ID 152644****\*152644\***

Page 1

Wednesday, November 02, 2016 8:47:23 AM

Item ID: D3529-1 Accept **\*N900040100\*** Setup Start **\*NS1\***  
Revision ID: Stop **\*NS2\***  
Item Name: Bearpaw  
Start Date: 11/2/2016 Start Qty: 2.00 **\*2\*** Cust Item ID:  
Required Date: 11/11/2016 Req'd Qty: 2.00 **\*2\*** Customer:  
Reference:

Approvals: Process Plan:  Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

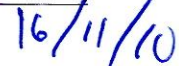
| Sequence ID/<br>Work Center ID | Operation<br>Description                                                                                      | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| Draw Nbr                       | Revision Nbr                                                                                                  |                      |         |        |              |               |               |                  |                |
| D3529                          | Rev A                                                                                                         |                      |         |        |              |               |               |                  |                |
| 110                            | FLOW WATER JET                                                                                                | 0.00                 |         |        |              |               |               |                  |                |
| <b>*110*</b>                   |                                                                                                               |                      |         |        |              |               |               |                  |                |
| Waterjet                       | Memo                                                                                                          | 0.06                 |         |        |              |               |               |                  |                |
| FLOW CNC Waterjet              | CUT BLANK AS PER FILE D3529-1BLANK                                                                            |                      |         |        |              |               |               |                  |                |
| 120                            | HAAS CNC VERTICAL MACHINING #1                                                                                | 0.00                 |         |        |              |               |               |                  |                |
| <b>*120*</b>                   |                                                                                                               |                      |         |        |              |               |               |                  |                |
| HAAS 1                         | Memo                                                                                                          | 0.18                 |         |        |              |               |               |                  |                |
| HAAS CNC vertical machine #1   | 1-Inspect material for defects or damage prior to machining2-Machine as per Folio FA645 and Dwg D35293-Deburr |                      |         |        |              |               |               |                  |                |
| 130                            | QC2- Inspect parts off machine FAI/FAIB                                                                       | 0.00                 |         |        |              |               |               |                  |                |
| <b>*130*</b>                   |                                                                                                               |                      |         |        |              |               |               |                  |                |
| QC                             | Memo                                                                                                          | 0.00                 |         |        |              |               |               |                  |                |
| Quality Control                |                                                                                                               |                      |         |        |              |               |               |                  |                |

DAS  
**49**  
9-89

DAS  
**49**  
9-89

PTO

DQA:

Date: Jan 03 2017



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed

Date: DEC 21 2016

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                       |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------|--|
| Work Order: <u>152644</u><br>Part No. <u>D3529-1</u><br>NCR No. <u>16-6188</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | <b>DISPOSITION</b><br>Rework <input type="checkbox"/><br>Scrap <input checked="" type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |  | <b>AGAINST DEPARTMENT/PROCESS</b><br>Skid-tube <input type="checkbox"/> Cross tube <input type="checkbox"/> Water Jet <input type="checkbox"/> Engineering <input type="checkbox"/><br>Machining <input checked="" type="checkbox"/> Small Fab <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Quality <input type="checkbox"/><br>Thermoforming <input type="checkbox"/> Finishing <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Other <input type="checkbox"/><br>Large Fab <input type="checkbox"/> Composite <input type="checkbox"/> Supplier <input type="checkbox"/>                                                                                                                                                                                                                                                                                |  |                       |  |
| Date: <u>16/11/10</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | Step #: <u>3000 120</u>                                                                                                                                                                   |  | QTY Effective: <u>+1</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | MRB (QSI042) Approval |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                           |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                       |  |
| Operator forgot insert Bearpaw Bolts (x6) before operate Programme #3000 all dimension are off tolerance<br><br>RC. No Replication Performed on start                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                                                                                           |  | SCRAP + Destroy<br><br>Replace B# <u>135913</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                           |  | Completed By <u>DAS</u><br><u>49161110</u><br>9-89<br>Lead hand / Supervisor Approval Verification<br><u>B.E.</u> <u>16-11-10</u> <u>08 9-89</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                           |  | QC / QA Coordinator Approval<br><u>Sio/lu/10</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                       |  |
| <b>Root Cause</b><br>Environment <input type="checkbox"/> No Re-verification <input type="checkbox"/><br>Design <input type="checkbox"/> Operator <input checked="" type="checkbox"/><br>Doc/Data <input type="checkbox"/> Offset/Setup <input type="checkbox"/><br>Equip/Tooling <input type="checkbox"/> Supplier <input type="checkbox"/><br>Handling/Pre <input type="checkbox"/> Training <input type="checkbox"/><br>Material <input type="checkbox"/> Use for Testing <input type="checkbox"/><br>Internal Transport <input type="checkbox"/> Poor Information <input type="checkbox"/><br>Tribal Knowledge <input type="checkbox"/> Rushing <input type="checkbox"/><br>LOA <input type="checkbox"/> Product Improvement <input type="checkbox"/><br>Substation <input type="checkbox"/> Process Improvement <input type="checkbox"/><br>Past Expiry Date <input type="checkbox"/> Manufacturing Process <input type="checkbox"/><br>Misidentified <input type="checkbox"/> Past Due <input type="checkbox"/> |  |                                                                                                                                                                                           |  | <b>FAULT CATEGORY</b><br>Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/><br>Bending <input type="checkbox"/> Set-up <input checked="" type="checkbox"/><br>Centre Not Concentric <input type="checkbox"/> BOM/Route <input type="checkbox"/><br>Cracks <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/><br>Crimp/Kink/Ripple/Wave <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/><br>Cuffs <input type="checkbox"/> Contamination <input type="checkbox"/><br>Crushing <input type="checkbox"/> Countersink <input type="checkbox"/><br>Heat Treat <input type="checkbox"/> Cut Too Short <input type="checkbox"/><br>Wave/Twist in Tube <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/><br>Marks/Chatter <input type="checkbox"/> Drill Holes <input type="checkbox"/> |  |                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                           |  | Power Loss/Surge <input type="checkbox"/> Positioned Wrong <input type="checkbox"/><br>Folio/Program <input type="checkbox"/> Outside Dimensions <input checked="" type="checkbox"/><br>Grain <input type="checkbox"/> Over/Under tolerance <input checked="" type="checkbox"/><br>Weld <input type="checkbox"/> Part Incorrect <input type="checkbox"/><br>Wrong Stock Pulled <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/><br>Out of Sequence <input type="checkbox"/> <u>Part Moved</u> <input checked="" type="checkbox"/><br>Off-set <input type="checkbox"/> Drawing <input type="checkbox"/><br>Misabeled <input type="checkbox"/> Finish <input type="checkbox"/><br>Fit/Function <input type="checkbox"/> Misread <input type="checkbox"/><br>Misaligned/off center <input type="checkbox"/> Turning Sequence <input type="checkbox"/>                                  |  |                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                           |  | OTHER :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                       |  |

**Work Order ID 152644****\*152644\***

Page 2

Wednesday, November 02, 2016 8:47:23 AM

Item ID: D3529-1

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Bearpaw

Start Date: 11/2/2016 Start Qty: 2.00

**\*2\***

Cust Item ID:

Required Date: 11/11/2016 Req'd Qty: 2.00

**\*2\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                            | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp             |
|--------------------------------|-----------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------------------|
| 140                            | QC8- Inspect parts - second check                   | 0.00                 |         |        |              |               |               |                  |                            |
| <b>*140*</b>                   |                                                     |                      |         |        |              | 2             | 0             |                  | DAS<br>20<br>9-89 16-11-11 |
| QC                             | Memo                                                | 0.01                 |         |        |              |               |               |                  |                            |
| Quality Control                |                                                     |                      |         |        |              |               |               |                  |                            |
| 150                            | Identify as per dwg & Stock Location: <u>51430A</u> | 0.00                 |         |        |              |               |               |                  |                            |
| <b>*150*</b>                   |                                                     |                      |         |        |              |               |               |                  |                            |
| Packaging                      | Memo                                                | 0.00                 |         |        |              |               |               | NOV 11 2016      | DAS<br>6<br>9-89           |
| Packaging                      |                                                     |                      |         |        |              |               |               |                  |                            |
| 160                            | QC21- Final Inspection - Work Order Release         | 0.00                 |         |        |              |               |               |                  |                            |
| <b>*160*</b>                   |                                                     |                      |         |        |              |               |               |                  |                            |
| QC                             | Memo                                                | 0.03                 |         |        |              |               |               |                  | DAS<br>21<br>9-89          |
| Quality Control                |                                                     |                      |         |        |              |               |               | NOV 11 2016      | NOV 11 2016                |



# Picklist Print

Wednesday, November 02, 2016 8:47:23 AM

Page 1

Work Order ID: 152644

**\*152644\***

Parent Item: D3529-1

**\*D3529-1\***

Parent Item Name: Bearpaw

Start Date: 11/2/2016

Required Date: 11/11/2016

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP Rev:A New Issue 06-06-28 JLM  
IPP Rev:B New Manufacturing Method 08-11-27 Verified By:EC

| Component Item ID/<br>Item Name              | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit                    | Total<br>Qty                      | Qty<br>Issued | Date<br>Issued | Status |
|----------------------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|--------------------------------|-----------------------------------|---------------|----------------|--------|
| MUHMWB10                                     |                        | Purchased     |             | No                  |                  | 100             | sf                 | 287.0000       | <del>1.265</del><br><b>1.5</b> | <del>2.663158</del><br><b>3.0</b> |               |                |        |
| <b>*MUHMWB10*</b>                            |                        |               |             |                     |                  |                 |                    |                |                                |                                   |               |                |        |
| UHMW 1" Black - 48"x120" Tivar Mfg.#52480104 |                        |               |             |                     |                  |                 |                    |                |                                |                                   |               |                |        |

Location

Loc Qty

Loc Code

MAT018

287

m135013

14

m135913

273

~~2.0~~ 3.5 + 3.5

on 11/11/02

|                              |               |                             |
|------------------------------|---------------|-----------------------------|
| <b>DART AEROSPACE LTD</b>    |               | <b>Work Order:</b> 152644   |
| <b>Description:</b> Bearpaw  |               | <b>Part Number:</b> D3529-1 |
| <b>Inspection Dwg:</b> D3529 | <b>Rev:</b> A | <b>Page 1 of 1</b>          |

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

| Inspection Sheet | Drawing Dimension | Tolerance       | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|------------------|-------------------|-----------------|------------------|--------|--------|----------------------|----------|
| A                | 5.50              | +/-0.030        | 5.502            | ✓      |        | vern                 | mml-05   |
| B                | 0.07 x 45°        | +/-0.030 x 0.5° | 0.058 x 45°      | ✓      |        | "                    |          |
| C                | R0.25             | +/-0.030        | 0.250            | ✓      |        | RG                   |          |
| D                | 0.250             | +/-0.010        | 0.247            | ✓      |        | micro                | mml-05   |
| E                | 0.625             | +/-0.010        | 0.625            | ✓      |        | vern                 | mml-05   |
| F                | 0.950             | +/-0.010        | 0.941            | ✓      |        | "                    |          |
| G                | 1.63              | +/-0.030        | 1.615            | ✓      |        | "                    |          |
| H                | 12.14             | +/-0.030        | 12.125           | ✓      |        | tape                 |          |
| I                |                   |                 |                  |        |        | ✓                    |          |
| J                | 5.70              | +/-0.030        | 5.700            | ✓      |        | vern                 | mml-05   |
| K                | 0.375             | +/-0.010        | 0.384            | ✓      |        | "                    |          |
| L                | 0.525             | +/-0.010        | 0.532            | ✓      |        | micro depth          | G5011351 |
| M                | 0.13 x 45°        | +/-0.030 x 0.5° | 130 x 45°        | ✓      |        | vern                 | mml-05   |
| N                | R0.50             | +/-0.030        | R0.500           | ✓      |        | RG                   |          |
| O                | 12.76             | +/-0.030        | 12.750           | ✓      |        | tape                 |          |
| P                | 3.38              | +/-0.030        | 3.380            | ✓      |        | vern                 | mml-05   |
| Q                | 3.75              | +/-0.030        | 3.754            | ✓      |        | "                    |          |
| R                | 5.187             | +/-0.010        | 5.184            | ✓      |        | "                    |          |
| S                | 5.25              | +/-0.030        | 5.250            | ✓      |        | "                    |          |
| T                | 7.13              | +/-0.030        | 7.128            | ✓      |        | "                    |          |
| U                | Ø0.260            | +0.006/-0.001   | 0.260            | ✓      |        | "                    |          |
| V                | 0.30              | +/-0.030        | 0.310            | ✓      |        | Depthg               | G9-08    |
| W                | 0.93              | +/-0.030        | 0.929            | ✓      |        | vern                 | mml-05   |
| X                | 1.30              | +/-0.030        | 1.300            | ✓      |        | "                    |          |

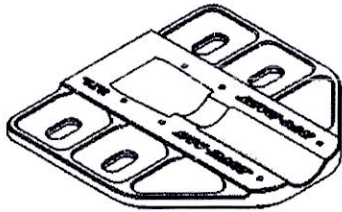
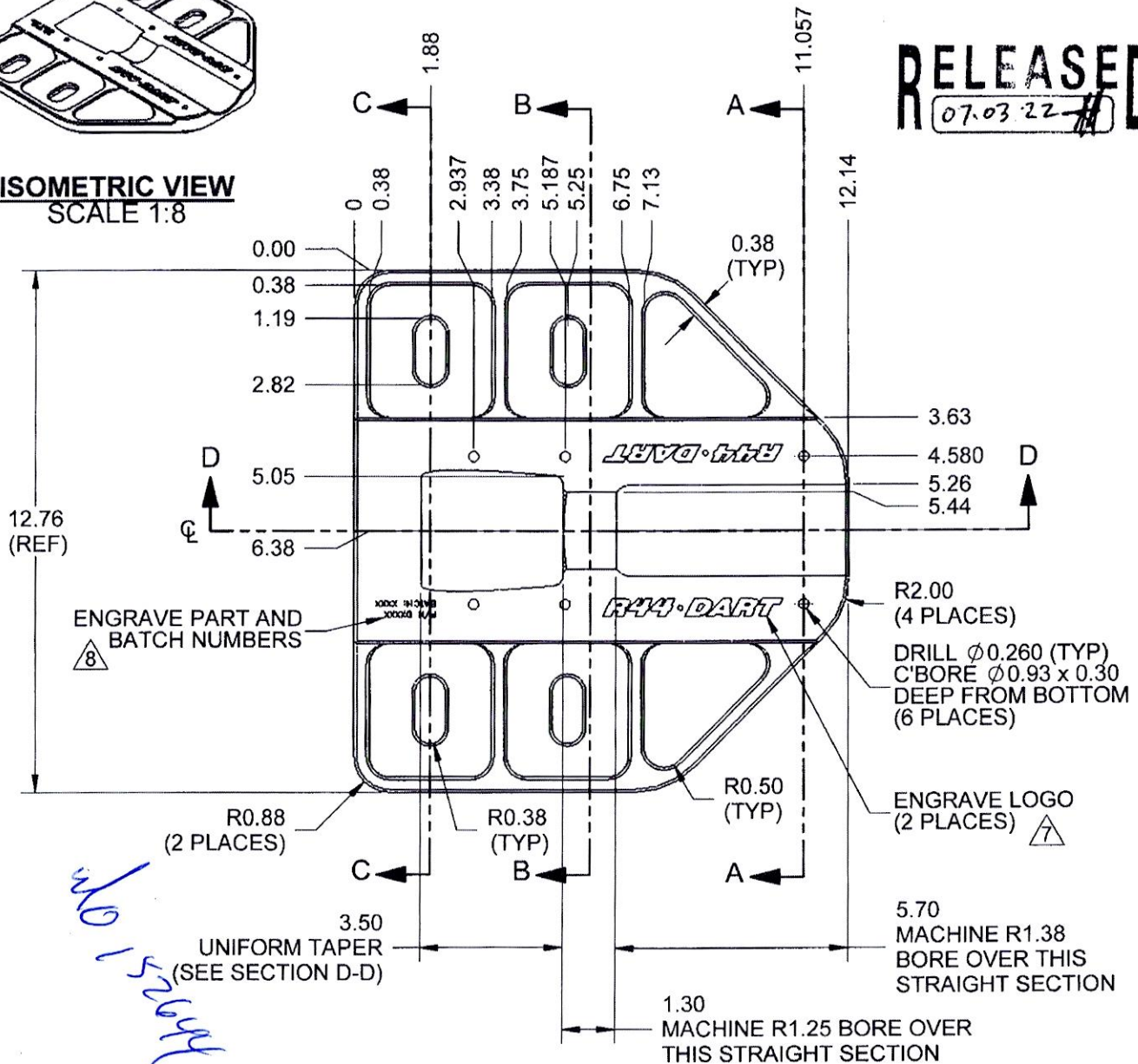
|                                 |                                |                            |     |
|---------------------------------|--------------------------------|----------------------------|-----|
| <b>Measured by:</b> DAS 49 9-89 | <b>Audited by:</b> DAS 20 9-89 | <b>Prototype Approval:</b> | N/A |
| <b>Date:</b> 16/11/10           | <b>Date:</b> 16-11-11          | <b>Date:</b>               | N/A |

| Rev | Date     | Change              | Revised by | Approved |
|-----|----------|---------------------|------------|----------|
| A   | 07.05.01 | New Issue           | KJ/JLM     |          |
| B   | 08.05.06 | Dimension I removed | KJ/DD      |          |



**DART**

|                               |                                |                                                          |                        |
|-------------------------------|--------------------------------|----------------------------------------------------------|------------------------|
| DESIGN<br><b>CB</b>           | DRAWN BY<br><b>CB</b>          | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA |                        |
| CHECKED<br><i>[Signature]</i> | APPROVED<br><i>[Signature]</i> | DRAWING NO.<br><b>D3529</b>                              | REV. A<br>SHEET 1 OF 2 |
| DATE<br><b>07.01.04</b>       | TITLE<br><b>R44 BEARPAW</b>    |                                                          | SCALE<br>1:4           |
| REV<br>A                      | DATE<br>07.01.04               | DESCRIPTION<br>NEW ISSUE                                 |                        |

**RELEASED**  
07.03.22**ISOMETRIC VIEW**  
SCALE 1:8**D3529-1 R44 BEARPAW****NOTES:**

- 1) MATERIAL: UHMW BLACK PER SPEC CONTROL DRAWING D2689, 1.00 THICK (MACHINE TO 0.950)
- 2) FINISH: NONE
- 3) PART IS SYMMETRIC ABOUT  $\phi$
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) ALL DIMENSIONS ARE IN INCHES
- 6) BREAK ALL SHARP EDGES 0.005 TO 0.010 MAX
- 7) ENGRAVE LOGO TO MAX DEPTH OF 0.012 AT LOCATION SHOWN
- 8) ENGRAVE PART AND BATCH NUMBERS TO MAX DEPTH OF 0.010 AT LOCATION SHOWN

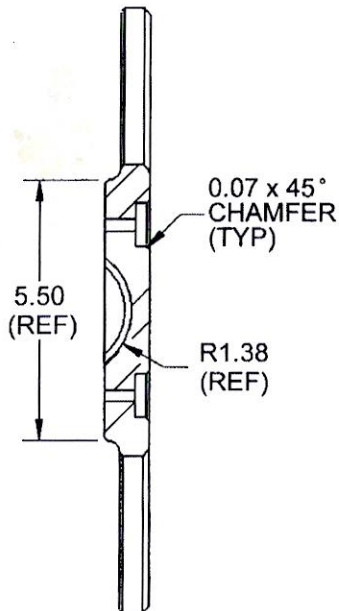
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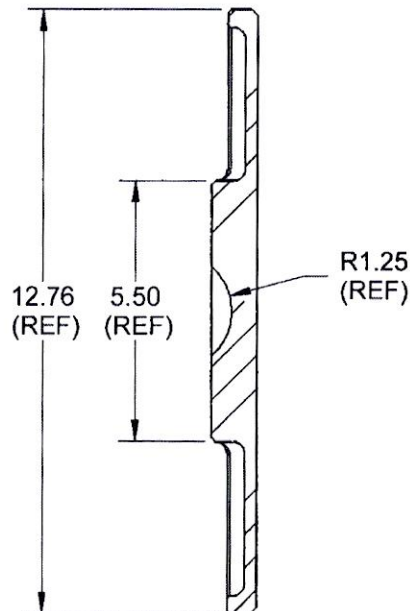


|                        |                         |                                                          |                        |
|------------------------|-------------------------|----------------------------------------------------------|------------------------|
| DESIGN<br>CB           | DRAWN BY<br>CB          | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA |                        |
| CHECKED<br>[Signature] | APPROVED<br>[Signature] | DRAWING NO.<br>D3529                                     | REV. A<br>SHEET 2 OF 2 |
| DATE<br>07.01.04       |                         | TITLE<br>R44 BEARPAW                                     | SCALE<br>1:4           |

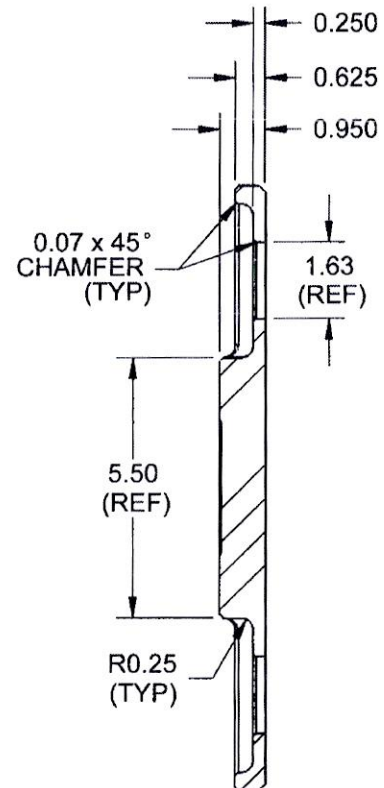
**RELEASED**  
07 03 22



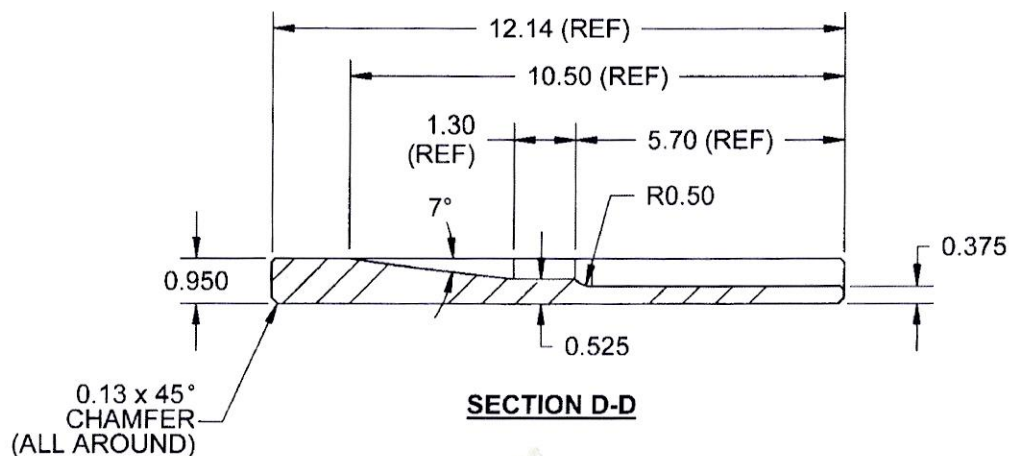
**SECTION A-A**



**SECTION B-B**



**SECTION C-C**



**SECTION D-D**

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